

Certificate

Standard Reference Material 740

ZINC

Freezing Point on The

International Practical Temperature Scale (1948)

419.505 °C

The temperature given above is the value assigned to the freezing point of pure zinc as one of the defining fixed points on the International Practical Temperature Scale of 1948 (revised in 1960.) The fixed point is realized as the plateau temperature (or liquidus point) on the freezing curve of slowly frozen high-purity zinc.

The zinc for this standard is of exceptional purity with the total of all other elements that affect the freezing point less than one part per million. Based on samples tested, the temperature range of melting for the bulk material is not expected to exceed 0.001 degree. Plateau temperatures for samples of this material are not expected to differ from one another by more than about 0.0002 degree, and by not more than 0.001 degree from the assigned temperature.

Further information on temperature scales and metal freezing points may be found in [1] Stimson, H. F., International Practical Temperature Scale of 1948; text revision of 1960, NBS Monograph 37, (1961); and [2] McLaren, E. H., "The Freezing Points of High-Purity Metals as Precision Temperature Standards", Temperature, its Measurement and Control in Science and Industry, Vol. 3, Part 1, Reinhold Publishing Corp., New York, N. Y. (1962).

The zinc metal for the preparation of this standard reference material was obtained from Cominco American Incorporated of Spokane, Washington. Evaluations of purity and homogeneity were performed in the NBS Institute for Materials Research by Robert Powell of the Cryogenic Properties of Solids Section and by Robert Alvarez and Paul Paulsen of the Spectrochemical Analysis Section. Temperature studies were performed in the NBS Institute for Basic Standards by John P. Evans of the Temperature Section.

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